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Acute Barbiturate Intoxication

A physiologic system of classification of the severity of the coma of barbiturate poisoning is presented and applied to analysis of a series of 300 cases. On the basis of an analysis of 209 cases treated prior to July 1949, it is shown that caffeine and amphetamine may cause fatal arrhythmias when given in doses exceeding 6 gm. and 300 mg. per 24 hours, respectively. A rational program of treatment based on the classification of the severity of coma is presented, and the results of the application of this system to a series of 91 patients treated after July 1949, discussed. No serious arrhythmias were observed. Picrotoxin caused premature ventricular contractions in 2 cases. The most serious complications were lower nephron nephrosis and hyperthermia. Secondary pneumonia was not a serious problem. The mortality rate in the 209 cases treated without a standard program of therapy was 13.4%, and in the 91 cases treated with a standard program the mortality rate was 5.5%.

After consideration of the treatment recommended by other authors, the following program of therapy was set up based on a classification of the severity of coma.

The following classification of severity of barbiturate poisoning was devised, based primarily on the degree of depression of the central nervous system, the respiration, and the circulation. The classification is not entirely original. It is basically the classic stages of anesthesia, which are modified slightly and adapted to this problem.

Group O: A patient who is asleep but can be roused and will answer questions, sit up in bed, drink fluids, et cetera.

Group I: A patient who is comatose but will withdraw from painful stimuli such as venipunctures, slapping, pinching, et cetera. There is no circulatory embarrassment, and all reflexes are intact.

Group II: A patient who does not withdraw from painful stimuli but has no respiratory or circulatory depression. Most or all of the reflexes are intact.

Group III: A patient in whom most or all reflexes are absent, but who is without depression of respiration or circulation.

Group IV: A patient in whom most or all reflexes are absent, and who has respiratory depression, with cyanosis, or circulatory failure and shock or both.

Grouping of a patient should not be done until an adequate airway has been established, because cyanosis and areflexia may be secondary to anoxia on an obstructive basis. When oxygenation is re-established the patient will be in a lighter group than he appeared at first.

In evaluating reflexes, primary emphasis should be given to the tendon reflexes. The pupillary and especially the corneal reflexes are often deceptive. Contrary to classic teaching, the authors' experience has been that often the corneal reflex is the first to disappear and the last to return.

There are certain general measures which apply to all cases. First and foremost, these patients must be carefully observed. Blood pressure, pulse, respirations, and reflexes should be recorded at least every 1/2 hour, and can conveniently be recorded in tabular form along with medications, fluids, and other pertinent observations.

Meticulous attention must be paid to the airway. A pharyngeal airway should be kept in place as long as the gag reflex is depressed, and at the slightest indication of laryngospasm an endotracheal tube should be inserted. The bed should be placed on shock blocks to facilitate drainage of secretions, and excess secretions should be removed by suction. If aspiration of vomitus occurs, bronchoscopy should be done immediately. Atropine can be given to reduce secretion, but there is danger of producing inspissated mucous plugs. The patient should be turned from side to side to prevent hypostatic pneumonia, and should be given prophylactic penicillin. Turning also helps to prevent the characteristic blisters which often develop over pressure points. In all patients except those in extremis a gastric lavage should be done even though the drug was taken many hours previously. In large quantities the barbiturates cause local gastric irritation and pylorospasm, and important amounts of the drug may remain in the stomach for many hours. A saline cathartic should be left in the stomach in an attempt to reduce absorption of the drug remaining in the bowel.

The fluid balance must be maintained as with any unconscious patient. The barbiturates are eliminated to a variable extent by the kidneys, and so adequate urinary output must be maintained. There is some experimental evidence that barbiturates are antidiuretic agents, so the mercurial diuretics may be useful, but their value has not been established. These patients are often alcoholics with variable impairment of liver function, and because these drugs are partially detoxified by the liver, parenteral vitamin B complex and glucose should be given. In addition, a continuous slow infusion affords a convenient route for the administration of analeptics.

If arrhythmias develop, they should be treated appropriately. Intravenous procaine is effective in stopping ventricular arrhythmias, while also affording a weak analeptic action.

In addition to the above general supportive therapy, the following use of analeptic drugs is advocated. It should be kept in mind that they are extremely powerful agents, and that caffeine and amphetamine especially have profound side effects on the cardiovascular system. The following schedules represent the maximal dosage. In acquiring experience with caffeine and amphetamine, the authors believe that the optimal dosage is lower than these limits. These drugs should be stopped if any arrhythmia occurs.

With these reservations, this is the standard procedure followed:

Group O and I. These patients should all recover without analeptics. They must, of course, be closely observed lest they lapse deeper into coma.

Group II. These patients will probably recover spontaneously, but recovery may be hastened and complications lessened by treatment with analeptics. Caffeine and sodium benzoate were given in doses up to 0.5 gm. every 2 hours, not to exceed 6 gm. in 24 hours, and/or amphetamine 25 mg., every 2 hours, not to exceed 300 mg. in 24 hours.

Group III. Many of these patients will die without analeptics. Caffeine and amphetamine should be given as above. If these measures do not restore reflexes within 15 to 20 minutes, picrotoxin should be used. A knowledge of its pharmacologic properties is essential to its proper use. Picrotoxin acts primarily on the spinal and medullary centers, unlike caffeine and amphetamine, which act primarily on higher centers. Picrotoxin is very quickly eliminated from the circulating blood and cannot be detected after about 10 minutes, and its effect is apparent for only about 30 minutes. On the other hand, the onset of its effect occasionally is rather mysteriously delayed for 10 to 15 minutes, and its injection should not be repeated too frequently for fear of masked cumulative toxicity. Therefore, it should be given every 20 to 30 minutes. The object of its use is to stimulate the return of reflexes, not the return of consciousness. Muscular twitching is a warning that the dose is too large and should be reduced. The optimal dose is that just short of the amount required to produce twitching and is different in each patient, and in a given patient varies from time to time. The administration of this drug is the personal responsibility of the physician and should not be delegated to the nurse. To arrive at the optimal dose 1 cc. (3 mg.) intravenously is given and the result observed. If twitching or return of reflexes does not occur the next dose is increased to 2 cc. (6 mg.), again observing the result. The dose is thus increased in a stepwise direction until the desired result is obtained. The patient must be re-examined before every dose to be sure that warning signs of twitching have not developed, since overdosage will cause convulsions. Should these convulsions occur the temptation to give sedation must be strongly resisted, because usually they are of short duration, and only if they last long enough to cause anoxia should they be treated with sodium pentothal (not sodium phenobarbital, because of its slower elimination). Used in this manner, picrotoxin is a relatively safe drug and has been given in quantities up to 14.0 gm.

Group IV. Caffeine, amphetamine, and picrotoxin are given as for group III, but larger doses of picrotoxin are usually necessary. Begin with 6 to 9 mg. and increase the dose more rapidly.

Oxygen has not been mentioned previously because anoxia is not a serious problem in groups O to III. Of course, oxygen should be given to all but the mildest cases, and can be given without fear of adverse effects

in groups I to III. However, in group IV patients with respiratory depression and anoxia, the administration of oxygen alone may be dangerous for two reasons: First, when the respiratory center is depressed by a barbiturate, the only stimulus to respiration may be anoxia acting through the carotid body, and with the relief of anoxia by oxygen this stimulus is removed and respiration ceases; second, that an intratracheal catheter may supply adequate exchange of oxygen across the alveolar membrane, but without adequate ventilatory motion of the chest, carbon dioxide will not diffuse and a severe respiratory acidosis may result. The already depressed respiratory center will be further narcotized by carbon dioxide. For these reasons, patients in group IV with any but the mildest respiratory depression should be given artificial respiration. Both the Drinker and the chest type of respirator have been used with good results.

If the patient is in shock, blood should be drawn for typing and cross matching immediately. The above treatment measures will often bring the blood pressure back to normal, but transfusion may be necessary. Neosynephrine (10 mg. per liter) or nor-epinephrine (1 mg. per liter) given in a continuous infusion is often of value in bringing the blood pressure back to normal when amphetamine does not.

Many drugs have been advocated in the therapy of barbiturate coma. Metrazol has much the same pharmacologic effects as picrotoxin and probably is of value. Nikethamide has been reported to be ineffective, as has sodium succinate. (Ann. Int. Med., Aug. 1952, C. E. Reed, M. F. Driggs, and C. C. Foote.)

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New Method of Communication for the Aphasic Patient

The paralytic individual with hemiplegia, spastic paraplegia, or other pathologic condition with cerebral involvement which causes complete aphasia with a more or less transient period of unconsciousness, becomes more and more frightened and panicky, especially, when the mental cloud begins to clear. He feels helpless and lonely because of his inability to communicate and express himself to make his needs known.

For the patient with hemiplegia, bulbar paralysis, or other type of cerebral lesion wherein the tongue feels thick and numb, the pharyngeal muscles and the delicate small laryngeal muscles are paralyzed which leads to unintelligible language and speech. Sensory disturbances of central nervous origin also involved cause total aphasia. The paralytic patient lies helpless, panicky, and distraught with fear he will never regain normal functioning muscles or be able to communicate with others.

One of the authors, Dr. Hamilton Cameron entered a hospital for a physical check-up and a much needed rest. He had an attack of hemiplegia, a transient period of unconsciousness, and total aphasia, the result of a

cerebral embolism following a coronary thrombosis. When he returned to consciousness, clear thinking, and intact hearing sense, he suffered most because of his complete aphasia. He expressed it best by saying, "I was imprisoned in a dead body, the pain of which held me, tortured me, the paralysis that encased my limbs and closed fast my throat was nothing compared to the terror that seized my mind. I could not speak and I wanted many things but could not make myself understood. I was a shut-in within a paralyzed body and, a shut-out from the world outside." Every aphasic patient has a similar experience of sadness and hopelessness. Dr. Cameron kept thinking repeating to himself mumbling over and over again, there must be someway I can make myself understood. Then began the birth of a new hand-sign-language. He put his healthy left upper extremity, especially the hand and fingers, to work. At first everyone thought he was developing a psychosis because of his mumbling and moving his fingers and hand in every direction. But little by little it became apparent that he had developed a new language of communication for the paralyzed. The "Hand Talking Chart" was the result.

It is a well-known fact that to train a muscle work must be supplied gradually increasing in the course of training to rehabilitate to normal function. This is true for the mental processes, and also, in the rehabilitation of the aphasic to coherent speech. The "Hand Talking Chart" is very easy to master, not only for the young child and the adult but also for the physician, nurse, attendant, or a member of the patient's family or friends caring for him. The attendant of the aphasic patient memorizes the signs on the chart, their meanings, and significance so that he may demonstrate the Hand Talking Chart to the patient. The aphasic individual even though he is paralyzed, usually has one normal upper extremity which he can train to make the finger and hand signs indicated on the chart. He may practice making the proper finger and hand movements knowing their different meanings until he perfects his knowledge of them. Slowly he masters this new language and uses it daily until he regains the use of his own speech, and in time use of his failing muscles. (Arizona Med., Aug. 1952, H. Goldstein and H. Cameron)

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Khellin Therapy in Angina Pectoris

Of 41 cases on khellin therapy 2 (5%) were definitely improved. Both these patients had severe angina and, although never entirely free from attacks, the relief they obtained, according to the criteria given was striking. Fifteen patients (37%) showed possible or slight improvement while taking khellin. An interesting feature in several of these cases was the relief from night pain with little or no effect on increasing their exercise tolerance or the number of nitroglycerine tablets used during the day. Twenty-four patients (58%) showed no beneficial changes while on khellin therapy. No particular type of heart disease with angina seemed more benefited than another, although it is interesting that the 2 cases with the best results were classified as severe angina. Random blood counts on some of the patients during their course of khellin therapy showed no change over the control results. There was also no effect noted on the systemic blood pressure. Seven of the 41 patients died during the study.

In this group of patients the authors have attempted to utilize only cases in which the disease was chronic and relatively stabilized. The 41 patients were chosen from a much larger initial group. The severity of the coronary disease present in such anginal patients has been stressed by Blumgart, Schlesinger and Zoll. Old coronary occlusions or narrowing of 1 or more of the main coronary arteries were found in each of their 38 patients in whom angina pectoris was the primary cardiac symptom. In the majority of instances, old complete occlusions of at least 2 of the 3 main coronary arteries were found. The authors believe the high death rate in their series attests to the severity of the underlying disease rather than a failure of the therapeutic agent. The variations in the number of patients with angina pectoris benefited by khellin has been mentioned. It serves, however, to emphasize the known exacerbations and remissions of the disease, the individual variations in response to a new drug and each patient's attitude toward his disease. Thus 1 individual will attempt physical activity knowing it may precipitate an anginal attack and use nitroglycerine when the pain occurs or use it prophylactically. Another patient will recognize his physical limits and will not go beyond them, thereby avoiding the use of nitroglycerine. Likewise, nitroglycerine tablets are frequently used by various patients for attacks of nocturnal dyspnea without pain, arthritic aches, et cetera. There is a great lack of objective criteria in evaluating the response to any treatment in patients with angina pectoris. Exercise and anoxemia tests are of some aid but in a group of elderly clinic patients with severe angina, the majority of whom are on digitalis therapy, such tests are of limited value. The patient's well-being and his personal impression of the treatment must be relied upon to a great extent. Thus the 2 patients who showed striking improvement in the series used fewer nitroglycerine

tablets, increased their exercise tolerance, and subjectively felt much improved on khellin. Those with slight to moderate improvement occasionally used as many nitroglycerine tablets while on khellin as when on the placebo or on no treatment, but clinically they seemed improved or their attacks of angina were less severe and incapacitating.

The lower percentage of improved patients in this series than in some others may also be due to the longer period of investigation in a disease with exacerbations and remissions; a short-term evaluation of this type of therapy may give misleading results. This was apparent when the authors analyzed the results in their first few patients after 4 to 6 weeks of treatment. The need is great for a drug with a prolonged "dilating effect" in the treatment of patients with angina pectoris. In certain of these khellin may meet this requirement. It may even be more useful if the untoward side effects can be eliminated so that larger doses can be utilized. (Am. J. M. Sc., Aug. 1952, J. E. Strang and J. B. Vander Veer)(See U. S. Navy Medical News Letter, Vol. 17, No. 6, p. 2)

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Laboratory and Clinical Studies on Erythromycin

Erythromycin is a new antibiotic produced by an organism that was originally isolated from a soil sample collected on the island of Panay in the Philippines and identified on the basis of its morphology, cultural characteristics, and physiology as a strain of Streptomyces erythreus (Waksman). The production and some of the chemical and biologic characteristics of this antibiotic have been reported. When extracted with suitable reagents from the filtrate of properly grown cultures of the organism, the antibiotic is obtained in crystalline form as a basic compound that is grayish white, is soluble in water to an extent of about 2 mg. per cc., but is highly soluble in alcohols and in a number of other organic solvents.

Because the early results obtained by investigators seemed favorable and encouraging, and particularly because erythromycin might prove useful in the treatment of staphylococcal infections, additional laboratory studies were undertaken at the Thorndike Memorial Laboratory and a clinical trial in suitable cases, as they became available, was also started. A brief summary of some of the results of these studies and of the initial clinical observations is presented.

At the time of writing, treatment has been completed in 41 patients; these were regular admissions to the wards or outpatient clinics of the Boston City Hospital. More than two-thirds of the patients were treated for either pneumonia or hemolytic-streptococcus infections; none of them had received any antimicrobial therapy for this infection before erythromycin was started. Some of the remaining patients, however, were given

erythromycin only after it had become clear that they were not responding to the agents that they had been receiving. Still under observation and treatment at this and other hospitals are 4 additional patients with severe staphylococcal infections who have shown initially favorable responses. The results of the clinical and laboratory findings in the 41 patients whose treatment has been completed is summarized briefly; the types of cases, the range of the total dose used, and a rough estimate of the clinical and bacteriologic response to treatment are shown. All doses were given by mouth; the dosage regimens were mainly experimental and depended in part on the dosage forms available, and they were altered as experience was acquired.

In its antibacterial spectrum, its mode of action, and its clinical efficacy in the treatment of the acute infections thus far treated, erythromycin appears to be similar to penicillin. However, it is active against penicillin-resistant staphylococci, though not in all cases, and does not seem to be as effective as penicillin in gonorrhea. To date, no toxic effects from oral therapy have been observed, except for vomiting in 1 patient.

Because of the possibility that this agent will be of value in the therapy of certain acute infections resistant to other antibiotics, erythromycin appears to deserve a further clinical trial. (New England J. Med., Aug. 14, 1952, T. H. Haight and M. Finland)

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The Retention of Certain Plasma Volume Expanders Within the Circulation of Human Subjects Following a 1,000 cc. Hemorrhage

The problem of selecting the best plasma expander among those now available is proving to be difficult. Some are being eliminated on the basis of demonstrable toxicity but the remainder must be judged on the basis of comparative efficacy. It is essential to know of what value these agents are in human subjects and preferably in those in need of transfusion. Unfortunately patients in shock or those undergoing major surgery do not constitute a sufficiently uniform group in which to compare agents, most of which are very nearly equal in their effects.

Nine healthy male students between the ages of 19 and 27 served as experimental subjects. They were admitted to the hospital where normal hydration was maintained on an oral fluid intake at a rate of 100 cc. per hour during the studies.

Control measurements of hematocrit, hemoglobin, total plasma protein concentration, and plasma volume were made at the outset after which 900 to 1,100 cc. of blood was removed rapidly (within 30 minutes) from a femoral artery. A blood sample was then taken for hemoglobin and hematocrit after which 1,000 cc. of a plasma expander (oxypolygelatin,

plasma, or saline) was infused intravenously in 30 minutes. Blood samples for determination of hematocrit, hemoglobin, total serum protein concentration, and expander concentration were withdrawn at 15 minutes and 4, 12, and 24 hours after completion of the infusion. In addition the plasma volume was redetermined at 4 and 12 hours post-infusion. When possible the urinary excretion of the expander was also measured.

No effects on red cell storage, production, or destruction were demonstrable in this preliminary group. Native plasma protein was added to the circulation rapidly in the patients receiving saline or OPG. The duration of intravascular retention and urinary excretion of OPG was quantitated and while OPG was rapidly eliminated initially, plasma protein was added sufficiently rapidly to maintain a practically stable blood volume. The patients who received plasma also maintained a good blood volume but those who received saline lost about half of the volume infused within 15 minutes of the completion of the infusion. (Surgery, Aug. 1952, H. G. Barker; J. D. Elder; J. M. Walker; and H. M. Vars)

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The Intramuscular Use of Pronestyl (Procaine Amide)

The value of procaine and procaine amide in the treatment of cardiac arrhythmias has been established by many investigators. Procaine has several disadvantages: it is rapidly hydrolyzed in the body so that it is difficult to maintain a therapeutic level; it produces central nervous system stimulation in the unanesthetized individual; and it is not effective when given by the oral route. These shortcomings have been largely obviated by the use of pronestyl (procaine amide). This preparation has been administered orally as well as intravenously. Unlike procaine, pronestyl is not affected by the procaine esterase of the body and consequently maintains an effective plasma concentration for relatively long periods. Following intravenous administration the plasma levels decline slowly, about 10 to 20% per hour. With oral administration peak plasma levels occur in about 1 hour after which they closely approximate those following intravenous administration. About 50 to 60% of procaine amide is excreted unchanged in the urine.

Although pronestyl is effective intravenously, the oral method is considered to be the one of choice. Most of the untoward effects observed occurred after intravenous administration and are particularly prone to occur in older patients and in those with heart damage. They consist chiefly in the development of hypotension, electrocardiographic abnormalities, and, rarely, fatalities. Hypotension is relatively common and occasionally may be quite marked resulting in coronary insufficiency and convulsive seizures. The electrocardiographic effects consist of pro-

longation of the Q-T segment, widening of the ventricular complexes, alteration in T waves, and ventricular tachycardia. Of the 78 patients treated with intravenous and oral pronestyl in a series previously reported from this hospital, there were 15 episodes of toxicity, mostly of a minor grade. In addition, in 4 patients who were in extremis the administration of pronestyl was followed by death within 45 minutes following the intravenous administration of the drug. Untoward effects are infrequently observed following oral medication; when seen they are usually mild in character, although agranulocytosis following oral maintenance doses of pronestyl was recently reported.

Because of the toxicity associated with intravenous administration, it seemed advisable to evaluate the effects of an intramuscular preparation for parenteral use. This, while slower acting than when given intravenously, would be simpler to administer and might be less toxic. The purpose of this investigation was to determine the therapeutic dose, relative efficacy, and serum levels of intramuscular preparations of pronestyl and to compare these data with those obtained by oral and intravenous administration.

The authors' experience with the intramuscular use of pronestyl gluconate and pronestyl hydrochloride is reported.

Various doses of the two drugs were given in single injections to normal subjects and patients with congestive heart failure accompanied with varying degrees of renal insufficiency. In addition, pronestyl hydrochloride was administered intramuscularly in multiple doses to a group of normal subjects and patients with congestive failure. Both drugs were used intramuscularly in the treatment of ectopic rhythms.

Determination of serum levels indicates that absorption by this route is quite satisfactory. An appreciable level is observed within 5 minutes and peak levels are observed usually at 15 minutes to 1 hour, after which the serum levels decline slowly. A significant level is still observed after a 6-hour period. Higher serum levels and a slower rate of decline were noted in patients with renal insufficiency. The toxic effects as observed in this study are generally mild and compare favorably to those following oral administration. The severe hypotension which occasionally follows intravenous administration was not seen.

The efficacy of the drug given intramuscularly in the treatment of arrhythmias is similar to that observed when it is given orally and intravenously. When given intramuscularly, however, pronestyl has a more rapid action than with the oral route and a slightly slower action than with the intravenous route.

Although the intravenous route may be used when an extremely rapid effect is desired, it is believed that the intramuscular route is the preferred one for routine parenteral administration of this drug. (Am. J. Med., Aug. 1952, S. Bellet, S. E. Zeeman, and S. A. Hirsh)

Zirconium Salts in Prevention and Treatment of Rhus Toxicodendron Dermatitis

This article presents further laboratory experiences which justify the conclusion that certain zirconium salts are beneficial in prophylaxis and treatment of Rhus toxicodendron dermatitis.

Controlled experiments have demonstrated that hydrous zirconium oxide, zirconium hydrate carbonate, sodium zirconium glycolate, and zirconium oxychloride will precipitate and inactivate urushiol in vitro. In contrast, zirconium sulfate, acetate, and lactate precipitate urushiol but do not inactivate the toxic principle. Hydrous zirconium oxide when applied 1 hour after contact with the oleoresin will prevent the development of Rhus toxicodendron dermatitis; but it cannot reverse cellular death from the toxic oleoresin.

In ointment form, hydrous zirconium oxide is stable when placed in proper containers and may easily be applied. Its therapeutic results, with certain limitations, are dependable. No evidence of toxicity from cutaneous application of zirconium salts was noted. (A. M. A. Arch. Dermat. & Syph., Aug. 1952, G. A. Cronk)

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Fatal Exposure to Methylene Chloride Vapor

This is a report of an accidental industrial exposure of 4 men to methylene chloride vapor, in which 1 died. The remaining 3 recovered without sequelae, after varying periods of unconsciousness.

Methylene chloride,. or dichloromethane, is a compound derived from methane by the substitution of two chlorine for two hydrogen atoms in the methane molecule. Its formula is CH_2CL_2. It is chiefly used industrially as a major component of nonflammable paint removers and as a refrigerant in air conditioning. As a solvent for fats, oils, waxes, and other organic substances it compares favorably with any in the chlorinated solvent group. Because of its relatively high cost, it has not been used extensively as a solvent except where its low boiling point has made it more suitable for the extraction of essential oils and other materials which are adversely affected by higher temperatures.

Methylene chloride, like the other chlorinated hydrocarbons, has a definite anesthetic effect when inhaled in sufficient quantity. Methylene chloride has approximately the same anesthetic potency as carbon tetrachloride and only slightly less than that of chloroform. However, from the history of methylene chloride used as an anesthetic it is known that there is but a slight difference between the amounts required to induce surgical anesthesia and death.

In the 4 cases cited it is apparent that all the men were completely unconscious for periods of about 3 to 6 hours after having been exposed to methylene chloride vapor for periods of from less than 1 hour to about 3 hours.

The action of an anesthetic vapor or gas is that of a depressant of the central nervous system, particularly the brain. Many anesthetics have no action on the body other than their ability to produce narcosis; others can cause organic damage as well as narcosis. Methylene chloride was found to produce liver damage in dogs and guinea pigs but not in monkeys, rabbits, or rats. The autopsy report of this investigation did not indicate any pronounced effects on the liver or the kidneys, nor on other organs. However, the 3 men who recovered from acute exposure were found to have low hemoglobin values and red blood cell counts. It is possible that previous continued moderate exposure to methylene chloride vapor, rather than the single acute exposure, may be responsible for these changes.

It is interesting to note on autopsy 1 day after death that the concentration of methylene chloride in the lung tissue was 0.1 cc. per 500 gm. of wet tissue. If one were to assume an approximately equal concentration in the blood and the brain, this would be about 0.27 gm. per liter. The concentration of chloroform which causes unconsciousness is approximately 0.25 gm. per liter of blood.

In view of the rarity of methylene chloride poisoning more complete medical studies should have been carried out in these cases. Nevertheless, the medical data which are available provide some insight into the toxicologic effects produced by methylene chloride vapor. The significant findings may be briefly summarized as follows: 1. Irritation of the eyes and upper respiratory passages. 2. Irritation of the bronchi and lungs. 3. Possible adverse effects on the hemopoietic system as evidenced by the reduced hemoglobin value and red cell count in the cases of those who recovered. This is possibly the result of chronic exposure rather than of the single acute exposure. (A. M. A. Arch. Indust. Hyg. & Occupational Med., Aug. 1952, S. Moskowitz and H. Shapiro)

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Paratyphoid (Salmonella) in the Bay Region of California

During recent years numerous cases of gastrointestinal disease, presumed to be infectious yet not acutely contagious, have appeared in various parts of the country. These cases, some possibly only accompanied by a cold and others with no symptoms of influenza, are frequently called "intestinal influenza."

Among the relatively mild or momentarily acute gastrointestinal diseases segregation of the problems is difficult.. One problem is cer-

tainly that of bacillary dysentery, caused by almost endless types of a group of bacteria called the shigellae. These can be identified often only in early laboratory specimens and then infrequently and for so short a period that these cases are usually never identified with certainty. A second problem is food poisoning. This disease, when it occurs in a few persons in a home or in a small number of separated persons is likely not to have either clinical or epidemiologic identification; even if such is made, it is likely to be without laboratory support. Food poisoning is a term which covers several kinds of bacterial upsets and also some diseases of nonbacterial origin which may occasionally complicate the story.

Intestinal parasites, protozoa, or worms rather than bacteria, account for a few gastrointestinal upsets. Indigestion, allergy, fatigue, or nervousness can bring on symptoms which are likely to be called by any convenient name. The more the situation is examined the more the wonder whether or not the term, intestinal influenza, should be conceded at all, yet the story is too ill-defined to rule out the existence of a specific infection, perhaps due to a virus not yet recognized. In short, there is a sporadic incidence of gastrointestinal disease in which most of the cases are never identified and many are not reported.

In the "Bay Region," over the past 10 months, there have been cases of diarrhea and varying symptoms of fever and distress from which the bacteria recovered was known to be one of the most common of the paratyphoid group, the source of which was often traced to animals, frequently rodents.

It cannot be stated as a proved epidemiologic fact, but the cases in the "Bay Region" suggest that Salmonella typhimurium may be reaching persons from field mice or other rodents.

In San Francisco, between July and December 1951, there were 28 reported and hospitalized cases. Geographically, these were widely scattered, the few exceptions appearing to represent related cases. Three sets of related cases indicate potential contagiousness, although this feature is not as pronounced as would be expected if we use typhoid fever as an analogy. One was a father and child, one a possible contact in an apartment house, and a third group centered around a Thanksgiving dinner, one of the cooks at which had been ill 2 weeks earlier. There were 2 deaths, both in older persons. About half the cases were under 8 years of age, active children, some of whom were known to have played in vacant lots where rodents existed. Many of the premises were definite ly clean, however, grass fires, early rains, and cold drove numbers of field mice into homes.

In Oakland, 9 cases were reported during approximately the same period. Several of these were apparently related but the situation appears to fit a postulate of a rodent-borne epidemic of low proportions, with widely scattered cases derived primarily from rodents. Transmission from patients directly to other victims seems to depend on a chain of circumstances which precludes marked contagiousness.

Although these cases have been subjected to both field and laboratory examinations, the presence of both undiagnosed and unreported gastrointestinal upsets, and the wide spread in both geography and time make it unwise to consider the situation as epidemiologically proved. Nevertheless, these cases were found and studied, and there were certainly others that were not. The existence of such cases was proved by tracing points of contact and questioning members of family or neighboring groups. The reports must be regarded as only samples of what is actually occurring. The evidence is strong enough to suggest need for a renewal of efforts to control rodents, and a real effort to spot and consider epidemiologically all known cases of gastrointestinal disease.

These cases all have causes and many of them have epidemiologic significance. Unless they are detected and analyzed, there is no way of countering the normal risks as they ebb and flow.

The control of rodents is a civic responsibility in which citizens have a part. There is also needed a consciousness of the problem on the part of physicians and citizens, so that the separate kinds of gastrointestinal disease can be segregated and defined as well as possible, and so that the whole may not be dismissed under the protean diagnosis, intestinal influenza. If intestinal influenza is an entity then let it be a separate problem of the group and not a diagnosis that fictitiously pigeon-holes all undiagnosed upsets. (Arch. Pediat., July 1952, J. C. Geiger)

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Treatment of Frostbite With Particular Reference to the Use of Adrenocorticotropic Hormone (ACTH)

This report is divided into 2 sections, the first section is a detailed presentation of 2 patients who sustained cold injuries and were treated with ACTH. The dosage of the hormone and the duration of treatment were, of necessity, arbitrarily determined. The second section is chiefly concerned with the results of experiments on rabbits' ears using a standard cold injury in an attempt to evaluate further the influence of ACTH on the healing of frostbite.

The summary of these sections follows.

ACTH has been used in the treatment of 2 patients with cold injuries. Because these 2 appear to be the first cases of frostbite to be treated with ACTH, the authors detailed the changes in color, temperature, and sensation in the hope that they will serve as a basis for further trial with this hormone and as a means of comparing other methods of treatment when similar observations are made. Although ACTH may have lessened the intensity and duration of some signs and symptoms, it did not cause prompt regression or prevent the development of: increased capillary permeability with increasing edema formation in the first 2 to 3 days

after injury; vasodilatation (for prolonged periods); loss of light touch or pain perception; pain; hyperesthesia; or gangrene.

Observations on skin temperature and color changes in the injured area led to the following conclusions: Skin that did not eventually become gangrenous showed evidence of vasodilatation with increase in temperature. Skin that did eventually become gangrenous showed no evidence of vasodilatation and tended to assume the temperature of the environment. There may have been a brief period of increased blood flow to tissues that became gangrenous in the early hours after thawing, but this is not shown by the skin-temperature studies made on the first or subsequent hospital days. A low skin temperature was found over viable epithelium or subcutaneous tissue when these tissues were covered with blisters or nonviable skin. There was no progressive gangrene of any magnitude, the extent of tissue loss having been determined within 48 hours after thawing of the tissue at room temperature (approximately 80° F.). In retrospect, the extent of the loss of tissue could have been predicted, within a few millimeters, from the persistent cyanosis and the presence of low skin temperatures after thawing.

Experiments performed on rabbits' ears revealed that ACTH had no significant therapeutic effect on severe cold injury. Further experiments on rabbits' ears, with immediate rapid thawing, confirmed the findings of others with regard to the efficacy of this method of treatment of cold injury.

Clinical evidence is presented for the complete or nearly complete functional impotence of nerve tissue, including the vasomotor fibers, at least temporarily, in skin seriously injured by cold. (New England J. Med., Aug. 7, 1952, W. W. L. Glenn, F. B. Maraist, and O. M. Braaten)

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Diagnosis and Treatment of Pheochromocytoma

The epinephrine-producing tumor, pheochromocytoma, occurs with sufficient frequency to warrant consideration of this disease in all patients with hypertension. Approximately 200 cases have been reported in the literature, but many of these have been discovered at postmortem examination, accidentally during surgery, or during the treatment of some other condition. This article reports 2 cases of pheochromocytoma and outlines the current diagnostic and therapeutic management of this disease.

Because the kidney is implicated either primarily or secondarily in most cases of hypertension, the urologist is frequently called upon to assist the internist and cardiologist in attempting to establish the etiology of elevated blood pressure. It is believed that a complete urologic survey of the patient with hypertension should include not only an evaluation of the kidneys, but careful study of the adrenal glands as well. The urologist should be thoroughly familiar with the management of patients who have an excess of circulating epinephrine due to an adrenal tumor.

The symptomatology associated with pheochromocytoma can be most bizarre. The symptoms must be specifically sought in the taking of the patient's history. Otherwise, many of the typical complaints will not be brought to light.

The patient may relate a history of paroxysms characterized by dizziness, blindness, aphasia, convulsion, loss of consciousness, pounding headache, blanching of the extremities, a feeling of coldness, followed by drenching sweats. This disease does not always appear in paroxysmal form. In some cases, the elevation of the blood pressure may be sustained for weeks or months. Paroxysms, when they occur, vary in duration and intensity, lasting from a few minutes to many hours. They may be precipitated by emotional disturbances, exercise, changes in body position, injury, spinal anesthesia, or any situation which might be expected to cause a change in the blood pressure of a normal person.

Physical examination of patients who have a pheochromocytoma may reveal a striking change in the pulse rate and blood pressure in response to changes in posture. The pulse rate in the standing position may exceed that in the recumbent position by 20 or more beats per minute. The blood pressure in recumbency may be 50 mm. Hg. higher than it is in the erect position, in both systolic and diastolic phases. This postural hypotension and tachycardia is most unusual in hypertension due to other causes.

The cold pressor test (immersion of the patient's hand in ice water) is used in the evaluation of hypertension, and in most cases, results in an elevation of the blood pressure. If the hypertension is due to the presence of a pheochromocytoma a negative response will usually be obtained.

In a high percentage of patients who have an excess of circulating epinephrine, there are elevations in the basal metabolic rate, blood sugar level, and body temperature. In fact, some of these patients have been treated for diabetes mellitus, with response to insulin in an occasional case. Glycosuria may occur during periods of elevated blood sugar level. Some patients respond to the glucose tolerance test with a diabetic type of curve.

Various radiographic procedures are of value in the diagnosis of pheochromocytoma. A plain x-ray film of the abdomen will rarely demonstrate an adrenal tumor. Laminography, in which all shadows except those lying on a certain predetermined plane are rendered indistinct, will demonstrate an adrenal tumor more often. Pyelography, either excretory or retrograde, in some cases will show downward displacement of the kidney on the involved side. These methods, however, are seldom conclusive. The use of air surrounding the adrenal glands as a contrast medium greatly increases the diagnostic value of roentgenography.

The diagnosis of pheochromocytoma rests on a careful evaluation of all available data in each individual case. The treatment of pheochromocytoma is removal of the tumor. (J. Urol., Aug. 1952, C. A. Kuehn and J. N. Arthur, Jr.)

Primary Malignant Melanoma of the Spinal Cord

Primary malignant melanomas of the central nervous system have always been uncommon neoplasms, while those arising within the spinal cord are rare. Rasmussen, Kernohan, and Adson stated that 0.5% of all spinal-cord tumors were melanomas and that they constituted about 5% of the intramedullary neoplasms, but failed to state whether they were primary or secondary.

The origin of these tumors is an unsettled point, and at present there are several theories which offer partial explanations. Small pigmented areas in the pia, around the brain stem and the cervical portion of the cord, were noticed in routine autopsies many years ago. Farnell and Globus described this finding as normal in infants. Microscopic study of these areas show connective tissue containing chromatophores. Even the origin of the melanomas elsewhere in the body is still under discussion. Masson has held to the nerve-tissue origin of dermal melanomas. Ewing stated that superficial melanomas arise from the Merkel-Ranvier cells, whereas the deep ones stem from the Wagner-Meissner corpuscles. The latter structures are present in the meninges, and as Strong pointed out could be a source of the melanoma. Ribbert believed that the melanoma developed from specific mesoblastic cells which are found in early embryos and are unrelated to other types of cells. At present, most authors are of the opinion that the pigment is derived from a melanoblast which is in some way connected with the nervous system. These cells then exude the pigment, which is picked up by other cells, described as chromatophores, although Kessler believes that this occurs only when the melanoblasts become malignant. Allen has recently proposed the epidermal origin of melanomas, believing that epidermal cells undergo change and develop into pigment-producing cells. He does not suggest how melanomas in the central nervous system originate. Another explanation is that "cell rests" within the nervous system contain cells with the ability to produce melanin and that under certain circumstances these cells become malignant. Since the brain and spinal cord originally developed from the ectodermal layer of the embryo, it is possible that some of these primary cells do remain, but the process that causes them to become malignant is obscure.

Diffuse infiltration of the leptomeninges over the surface of the spinal cord and brain has been described by several authors. Bakody and associates stressed the term "tumor meningitis." They pointed out that the leptomeninges are separate from the subdural space and that the tumor cells spread throughout the subarachnoid space but do not involve the dura. In the authors' cases, not only the meninges, but also the ependyma, was infiltrated.

The majority of the recorded melanomas have not spread outside the central nervous system, although there have been exceptions. One would

gather that the melanomas in the central nervous system are less malignant than those arising outside, which usually run an extremely rapid course with widespread metastases. Why melanomas of the central nervous system do not erode blood vessels and metastasize outside the brain and spinal cord is not clear.

The histologic picture of melanomas within the central nervous system shows considerable variation. Some melanomas resemble carcinoma; others, sarcoma. The cells present great differences in size and shape. They may be present in sheets or whorls or clumped around blood vessels. In a study of serial sections, many different histologic pictures may be seen within the same tumor. Some areas resemble benign meningiomas, while others look not unlike a spindle-cell sarcoma. Pigment is found both in the cells of the neoplasm and lying free between the malignant cells. It can be analyzed directly for melanin, or the dihydroxyphenylalanine test for melanoblasts reaction may be utilized. In this test a chemical agent produces a black substance when it reacts with the enzyme melanogenase, indicating the presence of cells that are producing melanin.

Winkelman and associates laid down the principles for diagnosis of primary melanomas, in which they stressed that a primary neoplasm elsewhere could not be found and that the patient had a diffuse melanoblastic infiltration of the pia-arachnoid. This is the late situation, seen postmortem, but during the early stages, particularly with the spinal-cord melanomas, the symptoms may be simply those of a mass and it is not until months later that the widespread meningeal spread occurs.

Examination of the spinal fluid is also very helpful if melanoma cells are seen in the sediment or if the fluid contains free melanin. Apparently, the latter circumstance has been very infrequent, although Wortis and Wortis have found it in some of their cases. An increase in protein content and xanthochromia indicate only a block and do not give any information concerning the specific type of neoplasm. At operation, the only possibility of confusion is with hematoma. Some hematomas take on a black appearance, which may be difficult to differentiate grossly from that of a melanoma. A frozen section, however, will promptly clear up the doubt.

Treatment of these lesions is still far from adequate. If the tumor is small enough that it can be removed completely, a cure may be obtained. Tumors within the central nervous system appear to have a relatively low grade of malignancy, but, in view of their tendency to spread via the spinal fluid, it is unlikely that they will be recognized early enough. In most cases only palliative measures can be carried out. In one case the formation of a new foramen of Magendie relieved the hydrocephalus and preserved the patient's vision for the remainder of his life. The attack on the primary lesion made him worse, if anything. Certainly, to leave the dura open and attempt to decompress the cord is of no par-

ticular benefit. X-ray therapy has proved a failure. As yet, there are no chemicals or hormones which are satisfactory in causing regression.

Several atypical pigmented tumors within the central nervous system have been described by Bakody and associates and by Ray and Foot. The latter authors described meningiomas that contained pigmented cells. These behaved like benign lesions, and the patients lived for many years after operation. The relationship of this type of neoplasm to the ordinary malignant melanoma is not clear.

There seems to be no clear-cut clinical picture which will allow a preoperative diagnosis. The presence of multiple and rapidly extending lesions may arouse suspicion of a melanoma. However, detailed laboratory studies in which free melanin or melanin-containing cells are found in the cerebrospinal fluid are necessary to establish such a diagnosis. From the recorded case histories, this has not been usual. Rarely, melanin has been found in the urine, the presence of which may lead to the discovery of a melanoma in the central nervous system. (A. M. A. Arch. Neurol. & Psychiat., Aug. 1952, A. B. King, J. W. Chambers, and J. Garey)

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Hereditary Multiple Exostoses

Hereditary multiple exostoses is a familial disturbance in the growth of cartilaginous bone tissue, most marked at the diaphyso-epiphyseal junction of the long bones. Until the report of Ehrenfried in 1917, mention of this disease was relatively infrequent in the American literature, but since that time numerous cases have been reported. In a review of the American literature prior to his publication, Ehrenfreid was able to find 71 cases, to which he added 12 cases of his own. His contribution was to bring this condition to the attention of the medical profession in this country.

The nomenclature is confusing. In Britain it is referred to as "diaphyseal aclasia." Ehrenfried and others in this country preferred "hereditary deforming chondrodysplasia," a vague term which does not describe the actual findings. "Hereditary multiple exostoses," as proposed by Jaffe, is the most accurate description of the disorder and because of its simplicity seems to be a practical designation. Caffey, in his most recent book on x-ray diagnosis, refers to this condition as "chondromatosis" but gives "hereditary multiple exostoses" as a synonym.

The lesions of multiple exostoses are more readily demonstrated by x-rays than by clinical methods. The long bones are chiefly affected, especially in the lower extremities. The lesions are usually arranged bilaterally and symmetrically, but cases have been described in which one side of the body seems to be the site of predilection. The skull may

occasionally contain some lesions because it is preformed in cartilage, but usually it is not involved. The bodies of the ribs may show some pointed exostoses, especially at the chondral ends. Rows of flat knob-like lesions may frequently be noted on the scapulae, and similar prominences may occur on the innominate bones.

As was stated the disorder is most manifest in the tubular bones of the lower extremities. The most common site of involvement seems to be the knees. There may be synostoses or interlocking exostoses at the distal ends of the fibula and tibia. In the humeri the upper ends of the shafts are most often involved, in the forearm the lower ends of the ulnae and radii are the sites of lesions rather than the area closer to the elbow.

Hereditary multiple exostoses require no treatment, except in the presence of symptoms. The evolution of new exostoses, as well as their continued growth, usually ceases when the patient reaches adult life, though occasionally lesions will suddenly begin to enlarge rapidly after that time. It is for these lesions that Coley advises intervention. He states that wide excision is indicated, because the trauma from inadequate surgery may in itself cause malignant alteration. These bony tumors, like many others of the benign tumors, can become malignant, but this usually occurs in adult life. (Radiology, Aug. 1952, J. D. Stark, N. N. Adler, and W. H. Robinson)

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Lingular Disease

The relationship of lingular bronchiectasis to left lower lobe bronchiectasis has been known for a long time and has been aptly and completely discussed. It has been shown that bronchiectasis of the lingula associated with left lower lobe bronchiectasis occurs in between 75 and 80% of cases. In contrast, the presence of solitary lingular bronchiectasis without segmental disease of the lung elsewhere has been infrequent. Churchill found only 4 in 50 cases with bronchiectasis. Schmidt reported his findings in 555 bilateral bronchograms of which 257 had positive findings. Investigation of this positive group revealed evidence of nontuberculous bronchiectasis in 158. Of these, solitary lingular disease was found in only 2 instances. Overhold, Betts, and Woods made no mention of the occurrence of isolated lingular bronchiectasis in 39 patients who had had 53 separate operations. Clagett and Deterling in 1946, presented their findings on the technic for segmental pulmonary resection, with special reference to associated lingular and lower lobe disease. They did not record any case of solitary segmental lingular bronchiectasis.

The authors have encountered 32 patients having solitary lingular disease of whom 15 had bronchiectasis. These 15 are from a total of 370 cases with bronchiectasis seen at this clinic. Thus one can surmise that

this entity is not as rare as formerly believed. The authors' experience has been essentially that of others relative to the combination of lingular bronchiectasis associated with lower lobe disease on the left side.

In most instances lingular disease may be identified on routine postero-anterior and lateral roentgenograms of the chest without the aid of more elaborate diagnostic procedures. It is in the recognition of the signs, symptomatology, and roentgenologic appearance of lingular disease that this article is particularly applicable.

The term lingula refers to the tip or tonguelike projection of the upper lobe of the left lung but in general it is also considered to be the entire portion of this segment which is supplied by the first segmental bronchus that arises from the upper lobe bronchus.

Failure to recognize this as a separate segmental entity has resulted in a considerable number of failures in the treatment of bronchiectasis involving the left lower lobe. The upper margin of the lingula is often demarcated by a fissure or indentation in the anterior margin of the upper lobe. This extends in varying degrees of depths into the upper lobe, and in some cases it may be complete, thereby separating the left lung into three major lobes.

Of the 32 cases of lingular disease presented, 14 have been resected. The predominating disease was bronchiectasis. Carcinoma was encountered in 4 cases. If the patient's condition warrants, it is believed that resection is the treatment of choice in lingular bronchiectasis.

It is important to realize that lingular disease can be diagnosed on ordinary roentgenograms of the chest. On the postero-anterior and lateral chest films one can suspect disease, and confirmation is possible by bronchoscopy, bronchography, or exploration. Lingular disease is present more often than is usually suspected. All cases should be given careful diagnostic study, as carcinoma occurred in approximately 12% of those in this series. (Dis. Chest, Aug. 1952, W. A. Hopkins and T. F. Leigh)

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Local Use of Antibiotics in Chronic Suppuration of the Middle Ear and Mastoid

Fifty-four patients with discharging ears were treated by the local insufflation of four antibiotic powders——penicillin, streptomycin, chloramphenicol, and terramycin. Eighteen were uncomplicated cases of chronic suppurative otitis media, 7 were cases of chronic suppurative otitis media complicated by the presence of granulations, 17 were discharging radical mastoid cavities, and 12 were discharging fenestration cavities.

Three cases have been dry for 4 months, 16 for 3 months, and 23 for 2 months. Complete failure occurred in only 2 cases, both of which were

discharging radical mastoid cavities. One of them had a stenosed external auditory meatus, and the other did not appear for follow-up study, but never became dry while under observation, and had an infection with Pr. vulgaris which was resistant to all the antibiotics used.

The bacteriology of these infections was studied, and the sensitivity of the organisms to penicillin, streptomycin, chloramphenicol, and terramycin was determined.

There was no constant relation between the sensitivity of the organisms and the clinical response to the drug of bacteriologic choice, for in 14 cases the drug of choice failed to bring about any improvement, and in no fewer than 10 cases terramycin was used successfully in treating infections which were insensitive to it in vitro.

This inconsistency may have been due in some cases to changing flora. For example, in one case Staph. aureus and Esch. coli, both sensitive to chloramphenicol in vitro, were grown on culture. Application of this drug 7 times, at weekly intervals, did not cure the discharge but after 7 weeks terramycin was applied and the ear became dry and has remained dry for 3 months. A final swab, taken before applying the new antibiotic, grew Ps. pyocyanea sensitive only to terramycin in vitro.

Further, there was an incompatibility between the concentration of the drugs applied locally in this series and their concentration in the test-plates, for the latter were specifically prepared to approximate to the concentrations revealed in the blood, when they were administered systemically. Hence it is possible that some of organisms reported as insensitive to the antibiotics in the concentrations used in the plates might have been sensitive in vitro to the much higher concentrations that were used locally in these cases.

However, these arguments leave unexplained many of the cases in which there was no apparent relation between the sensitivity of the organisms and their response to the drugs applied.

It therefore seems that all such cases should be treated in the first instance with the particular antibiotic which is found by experience to yield the best results.

Terramycin has undoubtedly given the most satisfactory results in this series; for, whereas 47% of the 28 cases treated with chloramphenicol became dry, 83% of the 41 cases treated with terramycin became dry. Further, in a selected group of 14 cases in which the organisms were sensitive to both chloramphenicol and terramycin, 12 cases responded to terramycin after chloramphenicol had failed, whereas only 2 cases responded to chloramphenicol after terramycin had failed. Of the 24 cases in which terramycin and other antibiotics were used 18 responded to terramycin after other antibiotics had failed.

Definite conclusions are not warranted with so small a series as the present one, and with so short a follow-up period; but terramycin has given results so much superior to those obtained by any of the other antibiotics

that the authors believe that it is worthy of further extensive trial. (The Lancet, Aug. 16, 1952, P. E. H. Rutter and J. C. Ballantyne).

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Precautions to be Observed in Autopsy and Embalming Procedures Following the Administration of Radioisotopes

The Division of Biology and Medicine of the U. S. Atomic Energy Commission has approved the following information concerning precautions to be observed in autopsy and embalming procedures following the administration of radioisotopes: (1) An up-to-date list of all patients receiving radioisotopes should be maintained in the record office of hospitals, (2) Namesof all deceased persons should be checked against this list and the radioisotopes laboratory promptly notified; (3) If the deceased had received a therapeutic isotope dose within 2 months the body should be monitored before autopsy or release to a mortician; (4) The pathologist performing an autopsy should be informed that radioisotopes have been given; (5) In cases in which the level of radioactivity is less than 1/2 mr/hr no special precautions are necessary; (6) In cases in which the level is from 1/2 to 6 mr/hr, rubber gloves should be worn and these should be washed with soap and water prior to removal from the hands; (7) Where the level is over 6 mr/hr a lead apron and dosimeter should be added, thorough cleansing with soap and water or detergent of tables and other surfaces on which blood or other body fluids have spilled should be employed and smoking or eating avoided while wearing the rubber gloves; (8) In all cases where the level of radioactivity is over 1/2 mr every effort should be made to confine removed body fluids to special vessels, to pour them directly into a drain and flush copiously with water. When material is retained for further study suitable containers properly labeled should be used. The mortician should receive instructions similar to those for the pathologist. (Correspondence J. A. M. A., 23 Aug. 1952, Armed Forces Institute of Pathology)

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Change of Address

Please forward requests for change of address for the News Letter to: Commanding Officer, U. S. Navy Medical School, National Naval Medical Center, Bethesda 14, Maryland, giving full name, rank, corps, and old and new addresses.

Serologic Identification of Salmonella Cultures

Sporadic infections and epidemics of diarrheal disease caused by various types of the genus Salmonella occur in naval personnel frequently enough to present a significant problem in epidemiology and preventive medicine. Suitable control and preventive measures when Salmonella infections are encountered depend to a large degree upon accurate laboratory identification of the organism concerned.

Laboratories aboard ship and at shore establishments may obtain some confirmatory evidence by the proper use of Salmonella Polyvalent and Grouping Serums recently included in the JAN Catalog as new Navy items. Stock numbers for these materials are: No. 1-607-900, Salmonella diagnostic serum, Polyvalent; No. 1-607-905, Salmonella diagnostic serum, Group A; No. 1-607-910, Salmonella diagnostic serum, Group B; No. 1-607-915, Salmonella diagnostic serum, Group C_1; No. 1-607-920, Salmonella diagnostic serum, Group C_2; No. 1-607-925, Salmonella diagnostic serum, Group D; No. 1-607-930, Salmonella diagnostic serum, Group E; and No. 1-607-935, Salmonella diagnostic serum for Vi antigen. Instructions for use are enclosed in each container.

Specific, monovalent serums for the serologic type identification of Salmonella species are restricted to use by the Central Coordinating Agency on Diarrheal Diseases in the Navy. Representative strains of such organisms isolated aboard ship or at other field activities should be forwarded to the Naval Medical Research Institute in accordance with the Medical News Letter for 15 June 1951, Vol. 17, No. 12, p. 5. Reports of the final type identification of cultures will be sent to the originating activity. (N. M. R. I., N. N. M. C.)

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Course in Techniques of Using Radioisotopes in Research

The Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn. has announced the following winter schedule of class sessions in the Basic Course in Techniques of Using Radioisotopes in Research to be given at Oak Ridge: 5 Jan. to 30 Jan. 1953, 2 Feb. to 27 Feb. 1953, and 2 Mar. to 27 Mar. 1953.

Medical officers on active duty who wish to attend one of the class sessions as a student under the auspices of the Bureau should forward their applications to the Chief, Bureau of Medicine and Surgery. Applications should reach the Bureau at least 6 weeks prior to the convening date of the class session to allow for processing and transmittal to Oak Ridge in sufficient time for the Admissions Committee to determine the applicant's eligibility for admission.

The $25.00 registration fee for officers approved to attend the course will be borne by BuMed and authorization orders ONLY provided in accordance with BuSandA-BuPers Joint Letter of 30 Nov. 1951 (NDB 51-814). No reliefs can be furnished for officers during the period they are attending the course. (Prof. Div. BuMed)

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Third Annual Medical Military Symposium

The third annual medical military symposium for the Armed Forces of the United States will be held at the U. S. Naval Hospital, Philadelphia, Pa., 20-25 October 1952, under the auspices of the District Medical Officer, Fourth Naval District. As in the past, the program for this symposium has been designed to provide the Reserve and Regular Medical Department officers with the latest information and techniques to be employed in the many aspects of military medicine and dentistry. The subjects will be presented by speakers of outstanding prominence in their specialties. Special sessions are planned for officers in the medical, surgical, dental, and administrative fields.

The Chief of Naval Personnel has approved this symposium for the awarding of retirement point credit for those Naval Reserve Medical Department officers attending under training or appropriate duty orders. Naval Reservists residing in the Fourth Naval District will be issued appropriate duty orders without pay at the time of registration. Inactive Naval Reserve Medical Department officers residing in other Naval Districts and the Potomac River Naval Command who desire to attend this symposium should submit their requests to the Commandant of their home Naval District for orders covering the number of days which they plan to be in attendance. Officers of the Medical Department on active duty may be given "authorization orders" (no expense to the Government) in accordance with current instructions.

The complete program and full information is available at the District Medical Office, Building 4, U. S. Naval Base, Philadelphia 12, Pa. All correspondence and inquiries concerning this symposium should be forwarded to that address. (Reserve Div., BuMed)

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Medico-Military Symposium

A Medico-Military Symposium, will be held at the U. S. Naval Hospital, Chelsea, Mass., October 27, 28, and 29, 1952. Physicians and members of allied sciences are invited to attend.

The Chief of Naval Personnel has announced that Reserve Medical Department officers not on the Inactive Status List may be granted retirement point credits on the basis of 1 point for each day of attendance, provided the session attended is of 2 hours' duration or longer. Any officer desiring point credit for attendance at the Symposium should request appropriate duty orders without pay from the Commandant of his Naval District. A representative of the District Medical Office, First Naval District, will be present to record the names of those attending. (DMO, 1stND)

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Dental Officers Certified by American Boards

1. In order to correct any misunderstanding that may exist from previous issues of the News Letter, the following list of dental officers certified in their specialties by American Boards is published:

American Board of Oral Surgery	Certified
CAPT. Merritt M. Maxwell	1947
CAPT. Ralph W. Taylor	1947
CDR. Roger G. Gerry	1949
CDR. Theodore A. Lesney	1949
CDR. James L. Bradley	1950
CDR. Harold G. Green	1950
CDR. Arthur S. Turville	1950
CDR. Raymond F. Huebsch	1952

American Board of Prosthodontics	
CAPT. Alvin H. Grunewald	1949
CAPT. Arthur R. Frechette	1950
CAPT. Benjamin Oesterling	1950
RADM. Alfred W. Chandler	1951
CAPT. William W. Fowler	1951
CAPT. Stephen T. Kasper	1951
CAPT. Frank M. Kyes	1951
CDR. Joseph E. Josephson	1951
CDR. John V. Niiranen	1951
CDR. Harold R. Superko	1951
CAPT. Jack H. Sault	1952
CAPT. Frank E. Jeffreys	1952
CDR. Charles D. Hemphill	1952

American Board of Oral Pathology	
CDR. Robert A. Colby	1951

From the Note Book

1. A complete report concerning the present status of primaquine in the treatment of malaria has been released by the Council on Pharmacy and Chemistry of the American Medical Association. The report was prepared by a number of investigators in this field. (J. A. M. A., 23 Aug. 1952)

2. In a series of 162 patients with miscellaneous pulmonary lesions, 31 histologically confirmed bronchiogenic carcinomas were found. In 20 of these, bronchoscopic and cytologic examinations had been made. In the group of 20 patients, 13 had positive biopsy of bronchial tissue, 14 had positive cytologic examinations, and 17 had positive biopsy or cytologic examinations. All carcinomas located in the lower lobes or centrally were detected by one or both of these methods. (Am. J. Clin. Path., June 1952, CDR. W. Umiker, MC, USN)

3. Leukemia is said to occur about 8 to 9 times as often as a cause of death in radiologists as in other physicians. The ratio of this disease is also high in dermatologists. This excess in leukemia has been associated with exposure to strong radiation energy. (Am. J. M. Sc., Aug. 1952, S. Pellér and P. Pick)

4. An article discussing the chief characteristics of nerve gases with notes on the first-aid treatment appears in the British Medical Journal, 9 Aug. 1952.

5. The sternal marrow findings are reported in 84 cases of selected dermatoses studied from 1942 to 1950. In these cases 95 aspirations were performed to ascertain the diagnostic value of this procedure in the study of dermatologic conditions. (A. M. A. Arch. Dermat. & Syph., Aug. 1952, F. Pascher, M. N. Richter, H. Bellach, and F. Simm)

6. "Research Reviews" for August 1952 contains an interesting article on the present study of filariasis in Samoa with suggested methods of control and treatment. (G. F. Otto and L. A. Jackowski, Jr.)

7. Epispadias is a rare malformation, about 5 times more common in males than in females. The surgical problems are concerned with the accomplishment of good cosmetic reconstruction and the cure of incontinence existing in a high proportion of cases. A report of the operative results in 18 cases appears in the Journal of Urology, Aug. 1952, R. E. Gross and S. L. Cresson.

8. A series of 22 cases of lobotomy are presented and analyzed. Sixty-four percent of the total series of patients showed considerable improvement and 28.5% were able to leave the hospital. (A. M. A. Arch. Neurol. & Psychiat., Aug. 1952, W. J. Kane, H. M. Hurdum, and J. P. Schaerer)

9. The care of the patient during operation on the mitral valve for stenosis is discussed in Proceedings of the Staff Meetings of the Mayo Clinic, 30 July 1952, J. W. Pender.

10. There is a real danger that the universal use of antimicrobial drugs against active tuberculosis might foster neglect of other therapeutic efforts. Superior therapeutic results have been observed when judicious collapse therapy, prolonged bed rest, and surgical excision of any incurable localized destructive lesions have been combined with drug therapy. (Ann. Int. Med., Aug. 1952, H. C. Hinshaw)

11. Seventy-four cases of vitreous hemorrhage including 4 cases of hemorrhagic glaucoma treated by roentgen therapy are reported in Radiology, Aug. 1952, C. E. Hufford, F. C. Curtzwiler, and J. L. Roberts)

12. A total of 3,503 cases of poliomyelitis was reported in the United States for the week ending 23 Aug. 1952 as compared with 1,767 for the same week in 1951. Although the number of cases for the current week is large, the cumulative total (19,980) for the year to date remains below the corresponding total of 20,527 for 1949. The corresponding number for 1951 was 11,886. (PHS, F.S.A., 29 Aug. 1952)

13. The surgical approach to mediastinal tumors with a strong preference for wide transpleural incisions is discussed in the New Orleans Medical and Surgical Journal, Aug. 1952, J. D. Rives.

14. An article discussing contact dermatitis of the hands appears in the General Practitioner, Aug. 1952, G. L. Waldbott.

15. Methods and equipment are described which permit the dispersion of a calculated dose of radioactive gold within a tumor with minimal hazard to the surgeon, patient, and nursing personnel. (A. M. A. Arch. Surg., Aug. 1952, H. B. Wheeler, J. H. Rubenstein, M. D. Coleman, and T. W. Botsford)

16. Doctor Howard T. Karsner, Medical Research Advisor to the Surgeon General of the Navy, has recently returned to Washington, D. C. from a 6-week tour of Navy-Army medical facilities in the European area. During the tour, Doctor Karsner conferred with Navy and Army medical officers on medical problems concerning the personnel stationed in Europe. Doctor Karsner also conferred with leading civilian medical scientists of Great Britain, Belgium, France, Germany, and Switzerland on new developments in the field of medicine. He also attended the Fourth International Conference of the International Society of Geographical Pathology at Liege, Belgium. At this 4-day conference he was invited to sit with the Provisional Executive Committee, to take part in the reception of delegates, and to make the address on behalf of foreign delegates in response to the welcome by the Rector of the University. (TIO, BuMed)

17. Navy Medical Corps officers recently certified in their specialties by American Boards are: American Board of Psychiatry and Neurology, CAPT, David C. Gaede; American Board of Ophthalmology, LT. Orville M. Graves, Jr.; American Board of Pathology, LT. Robert J. Kleinhenz. (TIO, BuMed)

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BUMED INSTRUCTION 6320.2 22 Aug. 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Poliomyelitis victims; service for

1. The purpose of this instruction is to provide information concerning services and financial aid available from the National Foundation for Infantile Paralysis to the victims of poliomyelitis.

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BUMED INSTRUCTION 6460.1 22 Aug. 1952

From: Chief, Bureau of Medicine and Surgery
To: All Naval Hospitals

Subj: Cosmetic surgery in cases of asymptomatic heterotropia

1. In cases of asymptomatic heterotropia of long duration in members of the naval establishment, cosmetic ophthalmic surgery will not be done

unless there is a permanent amblyopia exanopsia with visual acuity less than 20/200 in one eye. This instruction is not intended to interdict surgical treatment of symptomatic heterotropia.

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BUMED INSTRUCTION 7302.1 25 Aug. 1952

From: Chief, Bureau of Medicine and Surgery
To: All Stations

Subj: Temporary duty travel costs of Air Force military patients in naval facilities

Ref: (a) USAF ltr AFCSG-34.3 of 9 July 1952

1. Because of difficulties experienced in arranging temporary duty travel of Air Force military patients in other than Air Force hospitals, reference (a) established an open allotment in the Fiscal Year 1953 fiscal code for the travel of Air Force military personnel and attendants to, from, and between non-Air Force medical facilities. This instruction is cancelled 30 June 1953.

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BUMED INSTRUCTION 6470.1 29 Aug. 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Radioactive Isotope Centers

Ref: (a) Radiological Safety Regulations Revised 1951

Encl: (1) List of radioisotope equipment

1. Effective 1 Sep. 1952 the following U. S. Naval Hospitals are designated as Radioactive Isotope Centers. USNH, St. Albans, N. Y., USNH, Bethesda, Md., USNH, Philadelphia, Pa., USNH, Oakland, Calif., USNH, San Diego, Calif.

2. All other naval hospitals are directed to report on Standard Form 120 all quantities of the items listed in enclosure (1) to the Bureau of Medicine and Surgery for disposition instructions.

BUMED INSTRUCTION 6320.3 2 Sep. 1952

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Dependent wives of discharged or released members of the naval service, medical (maternity) care of

1. This instruction provides that Prospective mothers, who are dependents (wives) of discharged or released personnel, already under the care of medical officers at naval activities, may be continued under outpatient prenatal care or hospitalization when in the opinion of the medical officer undue hardship would result from refusal of such care. Outpatient treatment authorized under this authority shall not be continued beyond 30 days after discharge or release from the active naval service of the prospective father.

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